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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,056	12/31/2001	Byeong-Dae Choi	053785-5045	5637

9629 7590 03/09/2004

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EXAMINER

WARREN, MATTHEW E

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/032,056

Applicant(s)

CHOI, BYEONG-DAE

Examiner

Matthew E. Warren

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 16-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the Election filed on December 30, 2003.

Election/Restrictions

Applicant's election of Group I, claims 1-15 in the Paper filed on December 20, 2003 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Wook (US 5,894,136).

In re claim 1, Wook shows (figs. 5-6F) an array substrate for a liquid crystal display device, comprising a substrate (1) a plurality of gate lines (12) arranged transversely on the substrate; a plurality of data lines (7, 8 in data line forming region in fig. 4c) disposed orthogonal to the plurality of gate lines. A plurality of thin film transistors is formed on the substrate adjacent to intersections of the gate lines and the data lines (col. 4, lines 47-67). Each thin film transistor includes a gate electrode (4), a

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gate insulation layer (6), an active layer (7), an ohmic contact layer (8), a source electrode (9a) and a drain electrode (9b). A plurality of pixel electrodes (11) are disposed at pixel regions defined by the intersections of the gate lines and the data lines wherein each pixel electrode connected to a corresponding one of the drain electrodes (col. 4, lines 55-57). A metal layer (9) formed on an entire surface of each of the data lines.

In re claim 2, Wook shows (fig. 6F) that the gate insulation layer (6) is disposed on the gate electrode.

In re claim 3, Wook shows (fig. 6F) that the active layer (7) is disposed on the gate insulation layer, and the ohmic contact layer (8) is disposed on the active layer.

In re claim 4, Wook shows (fig. 6F) that the source electrode (9a) and the drain electrode (9b) are disposed on the ohmic contact layer.

In re claims 5 and 6, Wook shows (fig. 6F) that the source electrode (9a) extends from one of the data lines and the drain electrode (9b) extends from one of the pixel electrodes.

In re claim 7-10, Wook discloses (col. 4) that the drain electrode and source electrode include at least a transparent conductive material (amorphous silicon). Each data line includes at least the transparent conductive material (lower layers 7 and 8 of amorphous silicon). Each pixel electrode includes the transparent conductive material (ITO). The transparent conductive material is selected from a group including indium tin oxide, indium zinc oxide, zinc oxide, tin oxide, and indium oxide (col. 1, lines 53-56).

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In re claim 11, Wook shows (fig. 6F) that the gate insulation layer is disposed on the plurality of gate lines.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wook (US 5,894,136) as applied to claim 1 above, and further in view of Kim (US 6,355,956).

In re claims 12-13, Wook shows all of the elements of the claims except the metal layer having the desired materials. Kim discloses (col. 3, 33-40) that the metal layer is selected from a group including aluminum (Al), copper (Cu), gold (Au) and silver (Ag) since they are suitable materials for a conductive layer. The metal layer is formed on an entire surface of the source electrode since the data line is formed integrally with the source electrode (col. 4, lines 64-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the data lines of Wook by using Al as taught by Kim to provide a suitable conductive layer for an LCD.

In re claim 14 and 15, Wook shows (fig. 6F) that the metal layer (9) is formed at peripheral portions of the plurality of pixel electrodes and at peripheral portions of the drain electrode.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew E. Warren whose telephone number is (571) 272-1737. The examiner can normally be reached on Mon-Thurs, and alternating Fri, 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MEW

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February 20, 2004



**ALLAN R. WILSON
PRIMARY EXAMINER**